

SUPPORTING UNIT FOR OIL PUMP OF CONTINUOUSLY VARIABLE TRANSMISSION

CROSS-REFERENCE TO RELATED APPLICATION

[0001] The present application claims priority to Korean Patent Application No. 10-2011-0078666 filed in the Korean Intellectual Property Office on Aug. 8, 2011, the entire contents of which is incorporated herein for all purposes by this reference.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present invention relates to a supporting unit for an oil pump of a CVT. More particularly, the present invention relates to a supporting unit for an oil pump of a CVT which may improve mutual operability between an input shaft of a CVT and a rotating shaft of an oil pump.

[0004] 2. Description of Related Art

[0005] Generally, an oil pump of an automatic transmission may be classified into an external gear pump and an internal gear pump, and a CVT (Continuously Variable Transmission) usually uses the external gear pump.

[0006] The CVT is equipped with conical pulleys mounted to an input shaft and an output shaft respectively and gap of the conical pulleys is variable, and a belt or a chain is used for connecting the pulleys. In CVT, when the gap between the conical pulleys are increased, the belt or chain approaches to a center of the pulleys, and hydraulic pressure is applied to control the gap. And thus, the CVT usually requires an oil pump which may generate high hydraulic pressure within a small space. A rotating shaft of the oil pump is connected with an input shaft of the CVT by a chain or a belt for being supplied rotation of the input shaft.

[0007] However, when the oil pump receives power from the input shaft of the CVT rotating at a high speed, the input shaft of the CVT and the rotating shaft of the oil pump may oscillate due to operation or rotation of the chain or supplied torque. Also, rotation of the chain may induce noise and vibration.

[0008] The information disclosed in this Background of the Invention section is only for enhancement of understanding of the general background of the invention and should not be taken as an acknowledgement or any form of suggestion that this information forms the prior art already known to a person skilled in the art.

BRIEF SUMMARY

[0009] Various aspects of the present invention are directed to provide a supporting unit for an oil pump of a CVT which may prevent oscillation of an input shaft of a CVT and a rotating shaft of an oil pump and also minimize noise and vibration.

[0010] In an aspect of the present invention, the supporting unit apparatus for an oil pump of a continuously variable transmission (CVT) may include the CVT disposed in a transmission housing, wherein an input shaft and a CVT case cover thereof are disposed thereto, the oil pump which is disposed in the transmission housing independent from the CVT and of which a rotating shaft and an oil pump case cover are disposed thereto, a connecting member which engages the input shaft of the CVT and the rotating shaft of the oil pump for trans-

mitting rotation of the input shaft to the rotating shaft, and a supporting unit which connects the CVT and the oil pump for preventing relative motion of the CVT and the oil pump.

[0011] The connecting member is a chain.

[0012] An end of the supporting unit is connected to the CVT case cover, and another end of the supporting unit is connected to the oil pump case cover.

[0013] The supporting unit may further include a stepped surface for connecting the CVT case cover and the oil pump case cover which form connecting surfaces that are not on the same level.

[0014] The supporting unit connects a CVT case with the CVT case cover, and connects the oil pump with the oil pump case cover, wherein the supporting unit may further include a stepped surface.

[0015] The supporting unit is formed as a plate shape.

[0016] The supporting unit may further include a stepped surface for connecting the CVT case cover and the oil pump case cover which form connecting surfaces that are not on the same level.

[0017] The supporting unit is formed as a hollow plate having a hole therein for preventing vibration and crack due to twist according to interaction between the CVT and the oil pump.

[0018] According to the exemplary embodiment of the present invention, the supporting unit is equipped between the CVT and the oil pump for preventing oscillation of an input shaft of a CVT and a rotating shaft of an oil pump.

[0019] And the supporting unit may maintain movement of a chain uniformly. And thus, the supporting unit may minimize noise and vibration due to movement of a chain or a belt.

[0020] The methods and apparatuses of the present invention have other features and advantages which will be apparent from or are set forth in more detail in the accompanying drawings, which are incorporated herein, and the following Detailed Description, which together serve to explain certain principles of the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0021] FIG. 1 is a perspective view of a transmission housing of a CVT provided with a supporting unit according to an exemplary embodiment of the present invention.

[0022] FIG. 2 is a top plan view showing connecting relationship of a CVT and an oil pump according to an exemplary embodiment of the present invention.

[0023] FIG. 3 is a perspective view of a supporting unit according to an exemplary embodiment of the present invention.

[0024] It should be understood that the appended drawings are not necessarily to scale, presenting a somewhat simplified representation of various features illustrative of the basic principles of the invention. The specific design features of the present invention as disclosed herein, including, for example, specific dimensions, orientations, locations, and shapes will be determined in part by the particular intended application and use environment.

[0025] In the figures, reference numbers refer to the same or equivalent parts of the present invention throughout the several figures of the drawing.

DETAILED DESCRIPTION

[0026] Reference will now be made in detail to various embodiments of the present invention(s), examples of which